

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: ITIKARLAPALLI *et al*

Appl. No.: 10/709,522

Filed: 05/11/2004

Simplifying Implementation of Custom Atomic  
Transactions in a Programming Environment

Art Unit: 2168

Examiner: SANDERS,  
AARON J

Attorney Docket No.:  
ORCL-003

**Supplemental Declaration by Inventor Under 37 CFR § 1.132**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

I, Krishnamohan Itikarlapalli, declare as follows:

1. I am one of the named inventors on the subject patent application.

2. I had filed a declaration under 37 CFR § 1.132 along with an Amendment filed on 31 August 2009 ("First Declaration") in the subject patent application. This Supplemental Declaration is being filed in addition to the First Declaration.

3. In particular, this Supplemental Declaration is being offered to provide objective evidence of long felt need for this invention.

4. The following documents are used as an objective basis for a conclusion of long-felt need:

A. EROL GELENBE, "A model of roll-back recovery with multiple checkpoints", San Francisco, California, United States, Pages: 251 – 255, Year of Publication: 1976. (Reference A)

B. SILBERSCHATZ, A., "A Case for Non-Two-Phase Locking Protocols that Ensure Atomicity", Publication Date: July 1983, Volume:SE-9, Issue: 4 , On page (s): 535 – 538, ISSN:0098-5589. (Reference B)

C. THEO HAERDER and ANDREAS REUTER, "Principles of transaction-oriented database recovery", Computing Surveys (CSUR) archive, Volume 15, Issue 4, December 1983, Pages: 287 – 317. (Reference C)

D. C. MOHAN , DON HADERLE, BRUCE LINDSAY, HAMID PIRAHESH and PETER SCHWARZ, "ARIES:A Transaction Recovery Method Supporting Fine-Granularity Locking and Partial Rollbacks Using Write-Ahead Logging", ACM Transactions on Database Systems (TODS), Volume 17 , Issue 1., Year of Publication: March 1992, Pages: 94 – 162. (Reference D)

E. NODINE, M.H and ZDONIK, S.B, "Automating compensation in a multidatabase", This paper appears in: System Sciences, 1994. Vol.II: Software Technology, Proceedings of the Twenty-Seventh Hawaii International Conference on , Publication Date: 4-7 Jan. 1994, Volume: 2 , On page(s): 293 – 302 (Reference E)

F. US Patent Number 5,781,910 published on July 14, 1998 and issued to Gostanian *et al.*

G. US Patent Number 6,799,188 published on March 6 2003 and issued to Weedon.

5. These References A-E of point 4 above, are believed to have been submitted in an Information Disclosure Statement (IDS) to the Patent Office.

6. Reference A published in 1976, discloses the general need for the present invention. See, for example, the page number 251, left column, the paragraph below '0. Introduction', which explains roll-back recovery based on checkpoints.

7. Reference B published in 1983, discloses a two-phase locking protocol as 'an almost universally accepted way to ensure atomicity' (see lines 3-6 of Abstract on Page 535 of Reference B) and "as the most common method used to ensure atomicity" (page 535, right column, lines 1-2 of the last full paragraph). The reference further discloses a dependency graph model based approach as an alternative to the two-phase locking protocol.

8. Reference C published in 1983, relates to principles of transaction oriented database recovery. The paper discloses "1.3 Summary of Recovery Actions" (starting from page 291, right side column). The paper further discusses various teachings related to atomic transactions.

9. Reference D published in 1992, relates to transaction recovery method supporting fine-granularity locking and partial rollbacks using write-ahead logging. In the Introduction section on page 95, the paper states that many methods of past as not having been always acceptable in transaction processing (including atomicity). The paper discloses a new recovery method based on logs.

10. Reference E published in 1994, relates to automatic compensation in a multi-database. Compensation is disclosed as the process by which a committed transaction is undone by running the semantic inverse of that transaction on the database. The paper discusses compensation in long-running multi-database transactions.

11. Reference F published in 1998, discloses protocols to assure transaction atomicity and consistent data replication.

12. Reference G published in 2001 relates to a transaction processing system providing improved methodology for two-phase commit decision.

13. The above noted references establish the need for implementation of atomic transactions from as early as 1976.

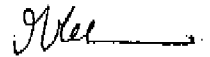
14. The need is shown to be persistent in the art since the above noted references span a few decades.

15. None of the references individually teach or reasonably suggest the claimed custom rollback procedures implemented in combination with a shared run-time environment, as claimed. Thus, the long felt need is not satisfied by another before the invention of the subject patent application.

16. The invention in fact solves the need, as also pointed out in the First Declaration.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,



Signature  
Krishnamohan Itikarlapalli

Date: 11<sup>th</sup> December 2009